

FLIGHT SUMMARY REPORT

Flight Number: 93-019
Calendar/Julian Date: 18 November 1992 • 323
Sensor Package: Wild-Heerbrug RC-10
Dual Hycon HR-732
Area(s) Covered: Gulf Coast

Investigator(s): Handley, USFWS

Aircraft #: 708

SENSOR DATA

Accession #:	04509	04507	04508
Sensor ID #:	026	038	039
Sensor Type:	RC-10	HR-732	HR-732
Focal Length:	12" 304.97 mm	24" 609.6 mm	24" 609.6 mm
Film Type:	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131
Filtration:	cc.10B	cc.10B	cc.10B
Spectral Band:	510-900 nm	510-900 nm	510-900 nm
f Stop:	4	8	8
Shutter Speed:	1/125	1/75	1/75
# of Frames:	164	186	182
% Overlap:	60	60	60
Quality:	Excellent	Excellent	Excellent
Remarks:	14.7 sec. offset between camera and navigation data	20.1 sec. offset between camera and navigation data	5.4 sec. offset between camera and navigation data

Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the camera system(s) used for data collection during this flight.

Camera Systems

Various camera systems and films are used for photographic data collection. Film types include high definition color infrared, natural color, and black and white emulsions. Available photographic systems are as follows:

- Wild-Heerbrug RC-10 metric mapping camera
 - 9 x 9 inch film format
 - 6 inch focal length lens provides area coverage of 16 x 16 nautical miles from 65,000 feet
 - 12 inch focal length lens provides area coverage of 8 x 8 nautical miles from 65,000 feet
- Hycon HR-732 large scale mapping camera
 - 9 x 18 inch film format
 - 24 inch focal length lens provides area coverage of 4 x 8 nautical miles from 65,000 feet
- IRIS II Panoramic camera
 - 4.5 x 34.7 inch film format
 - 24 inch focal length lens
 - 90 degree field of view provides area coverage of 2 x 21.4 nautical miles from 65,000 feet

The U.S. Geological Survey's EROS Data Center at Sioux Falls, South Dakota serves as the archive and product distribution facility for NASA-Ames aircraft acquired photographic and digital imagery. For information regarding photography and digital data (including areas of coverage, products, and product costs) contact EROS Data Center, Customer Services, Sioux Falls, South Dakota 57198 (Telephone: (605) 594-6151).

Additional information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: (415) 604-6252).

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-019**

Accession # 04507
Sensor # 038

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	0001-0012	17:57:13	17:59:42	65000/19800	Smoke obstruction (frames 0006-0009)
R - S	0013-0031	18:07:09	18:11:11	"	Clear
T - M	0032-0062	18:18:23	18:25:00	"	Minor cumulus (frames 0038-0040); minor-10 cumulus (frames 0048-0054)
U - V	0063-0085	18:35:54	18:40:50	"	10-30% cirro-cumulus (frames 0065-0074)
W - X	0086-0096	18:45:47	18:48:02	"	Minor-10% cumulus (frames 0095-0096)
Y - V	0097-0125	18:54:06	19:00:24	"	Minor-10% cumulus (frames 0097-0102)
Z - 1	0126-0138	19:18:26	19:21:08	"	Minor cumulus (frames 0126-0127)
B - A	0139-0178	19:32:39	19:41:25	"	Clear
2 - 3	0179-0186	19:47:22	19:48:56	"	Clear

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-019**

Accession # 04508

Sensor # 039

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0034	15:59:30	16:07:03	65000/19800	Minor cirrus (frames 0005-0007); minor-30% cirro-cumulus (frames 0014-0027)
C - D	0035-0059	16:10:35	16:16:04	"	Clear
E - F	0060-0089	16:23:15	16:29:50	"	Clear
G	0090-0091	16:34:03	16:34:17	"	Clear
H - I	0092-0115	16:52:47	16:57:58	"	Minor-10% cirro-cumulus (frames 0092-0093)
J - K	0116-0141	17:04:20	17:09:58	"	Minor-40% cirro-cumulus (frames 0135-0141)
L - M	0142-0155	17:21:22	17:24:18	"	Smoke obstruction (frames 0149-0150)
M - N	0156-0179	17:31:00	17:36:11	"	10% cumulus (frames 0165-0167 and 0177-0179)
O	0180-0182	17:43:44	17:44:11	"	Clear; light struck (frame 0182)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-019

Accession # 04509

Sensor # 026

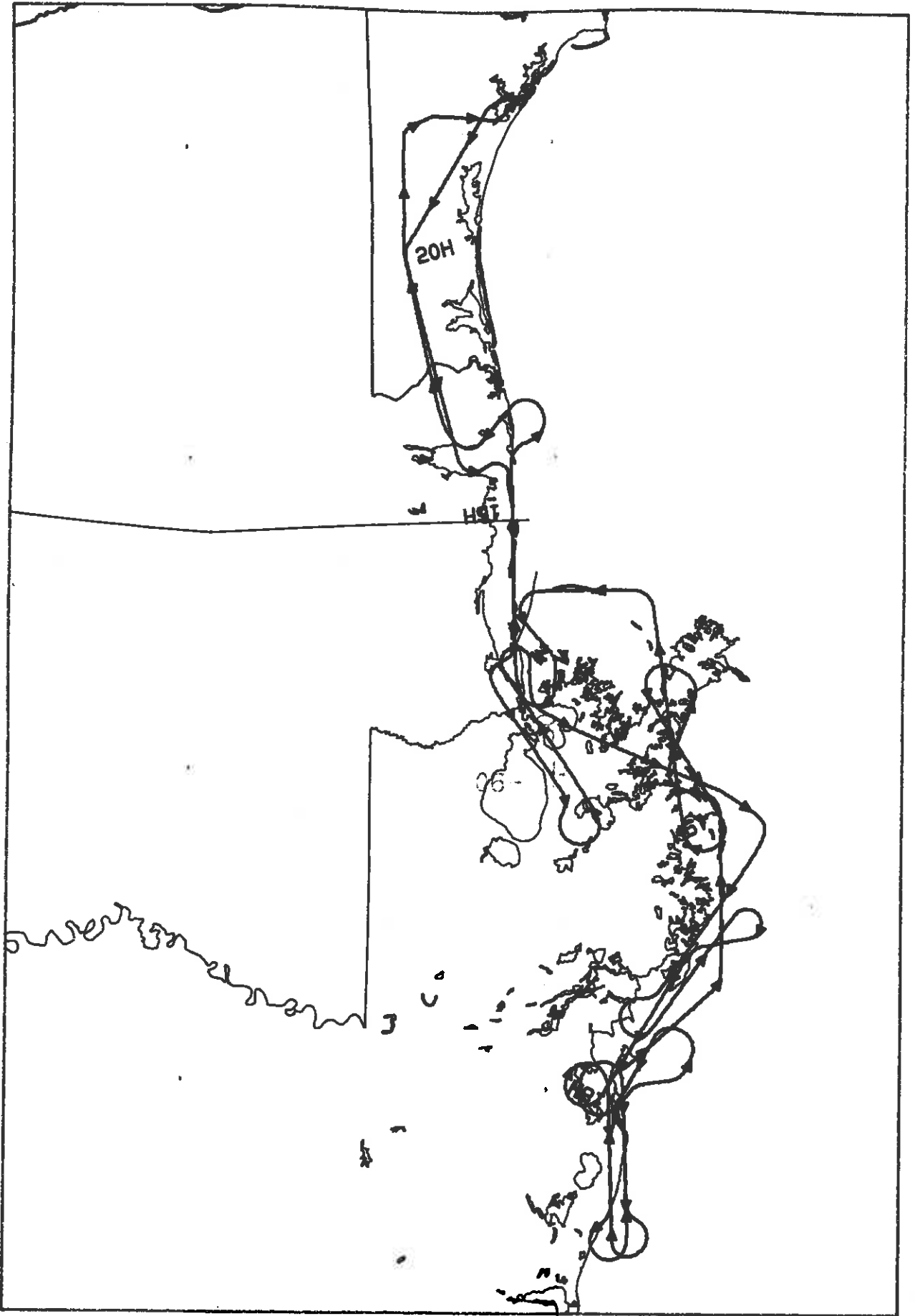
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	4668-4684	15:59:38	16:07:16	65000/19800	Minor cirrus (frames 4670-4671); minor-20% cirro-cumulus (frames 4674-4681)
C - D	4685-4696	16:10:44	16:15:58	"	Clear
E - F	4697-4710	16:23:23	16:29:33	"	Clear
G	4711-4712	16:34:15	16:34:25	"	Clear
H - I	4713-4724	16:52:59	16:58:08	"	Minor-20% cirro-cumulus (frames 4713-4714)
J - K	4725-4737	17:04:28	17:10:05	"	10-30% cirro-cumulus (frames 4734-4737)
L - M	4738-4744	17:21:23	17:24:10	"	Smoke obstruction (frames 4741-4742)
M - N	4745-4756	17:30:57	17:36:04	"	Minor cumulus (frames 4750-4751 and 4755-4756)
O - P	4757-4763	17:43:48	17:46:35	"	Clear

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-019**

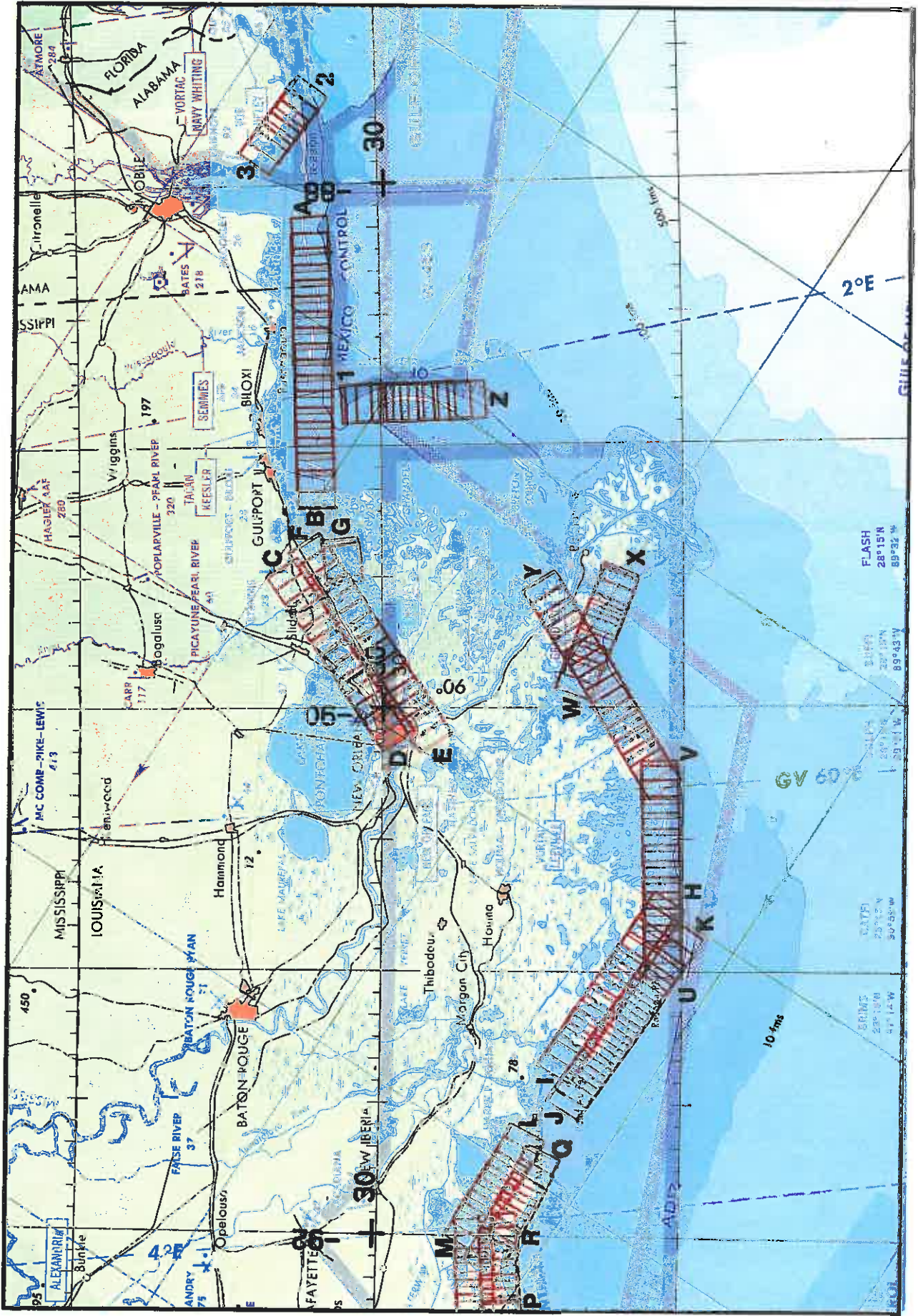
Accession # 04509

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	4764-4770	17:57:34	18:00:21	65000/19800	Smoke obstruction (frames 4766-4769)
R - S	4771-4780	18:07:25	18:11:36	"	Clear
T	4781	18:18:41	_____	"	Clear
U - V	4782-4794	18:36:06	18:41:19	"	10-30% cirro-cumulus (frames 4782-4788)
W - X	4795-4802	18:45:57	18:48:44	"	Minor-10% cumulus (frames 4800-4802)
Y - V	4803-4817	18:54:16	19:00:45	"	Minor-10% cumulus (frames 4803-4807)
Z - 1	4818-4826	19:18:35	19:21:49	"	10% cumulus (frames 4818)
2 - 3	4827-4831	19:47:31	19:49:21	"	Clear



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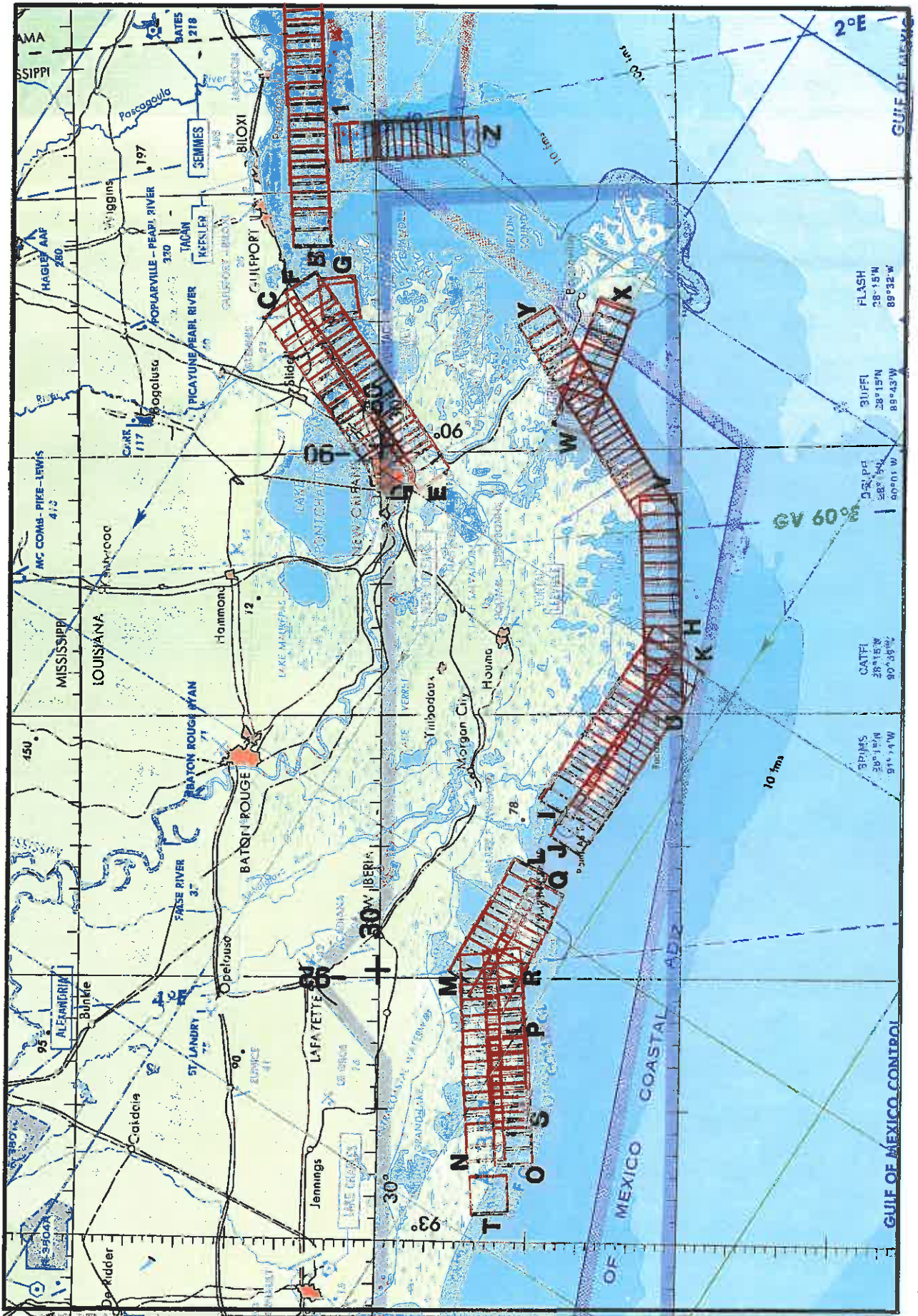
FLIGHT 89-019

18 NOVEMBER 1982

A/C 706

RC-10 / DUAL NR 732

JNC 44



FLIGHT 89-019

18 NOVEMBER 1992

A/C 708

HC-10 / DUAL HR 792

JNC 44